IN THE SPECIFICATION

Please replace paragraph **[0026]**, with the following rewritten paragraph:

[0026] Figure 9 depicts a valve manifold for use with the present invention with hidden features denoted by dashed lines.

Please replace paragraph **[0032]**, with the following rewritten paragraph:

[0032] The upper openings 14, 24, 34, and 44 can be connected to the equalization conduit 106 by one or more conduits, with each conduit having a valve therein. Preferably, the upper opening 14 of the vessel 10 is connected to the equalization conduit 106 via a first conduit 16 and a second conduit 18. The conduits 16 and 18 have valves 10C and 10D, respectively, which control the flow of fluid between the equalization conduit 106 and the vessel 10. The valves 10C and 10D are configured to provide a predetermined flow rate when in an open state, and preferably the valves 10C and 10D are configured to provide different predetermined flow rates. Accordingly, during a two-stage pressure equalization where fluid is flowing from the equalization conduit 106 (from one of the other vessels 20, 30, and 40) into vessel 10, one of the valves can be configured to open at a first predetermined flow rate that is appropriate during the first stage to achieve the desired equalization, and then the other valve (with the other valve closing or both valves open) can be configured to open at a second predetermined flow rate that ~~us~~ is appropriate during the second stage to achieve the desired equalization without detrimental fluid shock within the vessels and the system that may occur if large pressure differentials and large flow rate changes occur in the system. Alternatively, the PSA system of the present invention can include a single conduit and valve

connecting each vessel with the equalization conduit 106, or three or more conduits and valves can be used to connect each vessel with the equalization conduit 106 depending upon the flow characteristics desired in the PSA system. The valves of the PSA system 1A can be manually controlled, automatically controlled by a control system, automatically actuated based upon operating conditions, such as a predetermined pressure level, or some combination thereof. The valves can be variable flow rate valves, if desired.

Please replace paragraph **[0046]**, with the following rewritten paragraph:

[0046] The remaining adsorption vessels 20, 30, and 40 follow the same sequence of steps, however, each of the sequence of steps are offset from the other vessels. The processes for each of the remaining adsorption vessels 20, 30, and 40 are similar to that described above with regards to vessel 10; however, the various steps that require interaction between vessels will be performed using different vessels as specified in the PSA cycle diagram clearly set forth in Figure 1.

Please replace paragraph **[0065]**, with the following rewritten paragraph:

[0065] During time units 14 through 16, valve 10C is in a closed state, and valve 10B is in an open state to perform a final product repressurization step (FP) in vessel 10. During the final product repressurization step (FP), fluid flows from the vessel 50, which is currently performing the adsorption step, to the product manifold 102 via conduit 55, and then from the product manifold 102 along conduit 15 and through opening 14 into vessel 10.

Please replace paragraph **[0072]**, with the following rewritten paragraph:

[0072] The upper opening 64 can be connected to the equalization conduit 106 by one or more conduits, with each conduit having a valve therein. Preferably, in the six vessel PSA system 1C depicted in Figure 6, each upper opening 14, 24, 34, 44, 54, and 64 is connected to the equalization conduit 106 via a conduit 18, 28, 38, 48, 58, and 68, respectively. The conduits 18, 28, 38, 48, 58, and 68 have valves 10D, 20D, 30D, 40D, 50D, and 60D, respectively, which control the flow of fluid between the equalization conduit 106 and the vessels 10, 20, 30, 40, 50, and 60, respectively. The ~~valve~~ valves 10D, 20D, 30D, 40D, 50D, and 60D are configured to operate in the same manner as valves 10C and 10D described ~~about~~ above with respect to the four vessel PSA system 1A. Alternatively, the PSA system of the present invention can include plural conduits and valves can be used to connect each vessel with the equalization conduit 106 depending upon the flow characteristics desired in the PSA system.

Please replace paragraph **[0093]**, with the following rewritten paragraph:

[0093] During time unit 24, valve 10D is in a closed state, and valve 10B is in an open state to perform a final product repressurization step (FP) in vessel 10. During the final product repressurization step (FP), fluid flows from the vessel 60, which is currently performing the adsorption step, to the product manifold 102 via conduit 65, and then from the product manifold 102 along conduit 15 and through opening 14 into vessel 10.

Please replace paragraph **[0094]**, with the following rewritten paragraph:

[0094] The remaining adsorption vessels 20, 30, 40, 50, and 60 follow the same sequence of steps, however, each <u>of</u> the sequence of steps are offset from the other vessels. The processes for each of the remaining adsorption vessels 20, 30, 40, 50, and 60 are similar to that described above with regards to vessel 10; however, the various steps that require interaction between vessels will be performed using different vessels as specified in the PSA cycle diagram clearly set forth in Figure 5.

Please replace paragraph **[00116]**, with the following rewritten paragraph:

[00116] The remaining adsorption vessels 20, 30, 40, 50, 60, and 70 follow the same sequence of steps, however, each <u>of</u> the sequence of steps are offset from the other vessels. The processes for each of the remaining adsorption vessels 20, 30, 40, 50, 60, and 70 are similar to that described above with regards to vessel 10; however, the various steps that require interaction between vessels will be performed using different vessels as specified in the PSA cycle diagram clearly set forth in Figure 7.

Please replace paragraph **[00119]**, with the following rewritten paragraph:

[00119] Figure 9 depicts a three-dimensional, perspective view of the valve manifold ~~12~~ <u>120</u> that can be utilized with the present invention. The valve manifold 120 depicted in Figure 9 can be utilized by attachment of base 122 to a lower end of the vessel 10 of Figure 2. The valve manifold 120 is provided with at least one plenum cavity 130, which can be provided in communication with adsorbent vessel 10 (see Figure 2) via opening 12. The plenum cavity

130 is conduit 11 depicted in Figure 2. The manifold 120 is further provided with a first fluid channel 140 that forms a part of source manifold 100, when fluid channel 140 is connected via conduits to the same feature in the valve manifolds of vessels 20, 30, and 40. The manifold 120 also includes a second fluid channel 160 that forms a part of waste manifold 104, when fluid channel 160 is connected via conduits to the same feature in the valve manifolds of vessels 20, 30, and 40.